

UNITED STATES DISTRICT COURT  
NORTHERN DISTRICT OF CALIFORNIA

HUAWEI TECHNOLOGIES, CO, LTD, et  
al.,

Plaintiffs,

v.

SAMSUNG ELECTRONICS CO, LTD., et  
al.,

Defendants.

Case No. [3:16-cv-02787-WHO](#)

**CLAIM CONSTRUCTION ORDER**

**INTRODUCTION**

This case involves a dispute between telecommunications giants Huawei Technologies Co., Ltd., Huawei Device USA, Inc., and Huawei Technologies USA, Inc., and Counterclaim-Defendant HiSilicon Technologies Co., Ltd. (collectively, “Huawei”) and Samsung Electronics Co., Ltd., Samsung Electronics America, Inc., and Samsung Research America, Inc. (collectively, “Samsung”). Patents held by each party have been declared essential (“Standard Essential Patents” or “SEPs”) to the Long Term Evolution (LTE) standard used by the telecommunications industry. The parties reached an impasse while negotiating cross-licenses for their SEPs with fair, reasonable, and non-discriminatory (“FRAND”) terms and conditions, and this action (among others across the world), encompassing claims of patent infringement, breach of contract, and anti-trust violations, ensued. Huawei has asserted 11 patents against Samsung, and Samsung has asserted nine patents against Huawei.<sup>1</sup> I rejected Huawei’s proposal to bifurcate and stay the

<sup>1</sup> Huawei has asserted U.S. Patent Nos. 8,369,278 (“the ’278 patent”); 8,416,892; 8,483,166 (“the ’166 patent”); 8,812,848; 8,644,239 (“the ’239 patent”); 8,885,587; 8,885,583; 8,639,246 (“the ’246 patent”); 8,412,197 (“the ’197 patent”); 8,996,003; and 8,724,613 (“the ’613 patent”). Samsung has asserted U.S. Patent Nos. 8,228,827, 8,315,195 (“the ’195 patent”), RE44,105, 8,457,588 (“the ’588 patent”), 8,509,350, 9,113,419, 8,619,726 (“the ’726 patent”), 8,761,130 (“the ’130 patent”), and 9,288,825 (“the ’825 patent”).

1 patent claims pending resolution of the FRAND-related claims and, in accordance with the local  
2 patent rules, I limited each party to selecting five most significant terms for the purpose of claim  
3 construction. I held a Claim Construction hearing on August 18, 2017.

#### 4 **LEGAL STANDARD**

5 Claim construction is a matter of law. *See Markman v. Westview Instruments, Inc.*, 517  
6 U.S. 370, 372 (1996); *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996).  
7 Terms contained in claims are “generally given their ordinary and customary meaning.” *Vitronics*,  
8 90 F.3d at 1582. In determining the proper construction of a claim, a court begins with the  
9 intrinsic evidence of record, consisting of the claim language, the patent specification, and, if in  
10 evidence, the prosecution history. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313 (Fed. Cir. 2005);  
11 *see also Vitronics*, 90 F.3d at 1582. “A claim term used in multiple claims should be construed  
12 consistently . . . .” *Inverness Med. Switzerland GmbH v. Princeton Biomeditech Corp.*, 309 F.3d  
13 1365, 1371 (Fed. Cir. 2002).

14 “The appropriate starting point . . . is always with the language of the asserted claim itself.”  
15 *Comark Commc’ns, Inc. v. Harris Corp.*, 156 F.3d 1182, 1186 (Fed. Cir. 1998). “[T]he ordinary  
16 and customary meaning of a claim term is the meaning that the term would have to a person of  
17 ordinary skill in the art in question at the time of the invention, i.e., as of the effective filing date  
18 of the patent application.” *Phillips*, 415 F.3d at 1312. “There are only two exceptions to this  
19 general rule: 1) when a patentee sets out a definition and acts as his own lexicographer, or 2) when  
20 the patentee disavows the full scope of a claim term either in the specification or during  
21 prosecution.” *Thorner v. Sony Computer Entm’t Am. LLC*, 669 F.3d 1362, 1365 (Fed. Cir. 2012).

22 “Importantly, the person of ordinary skill in the art is deemed to read the claim term not  
23 only in the context of the particular claim in which the disputed term appears, but in the context of  
24 the entire patent, including the specification.” *Phillips*, 415 F.3d at 1313. “Claims speak to those  
25 skilled in the art,” but “[w]hen the meaning of words in a claim is in dispute, the specification and  
26 prosecution history can provide relevant information about the scope and meaning of the claim.”  
27 *Electro Med. Sys., S.A. v. Cooper Life Scis., Inc.*, 34 F.3d 1048, 1054 (Fed. Cir. 1994) (citations  
28 omitted). “[T]he specification is always highly relevant to the claim construction analysis.

Usually, it is dispositive; it is the single best guide to the meaning of a disputed term.” *Vitronics*, 90 F.3d at 1582. “However, claims are not to be interpreted by adding limitations appearing only in the specification.” *Id.* “Thus, although the specifications may well indicate that certain embodiments are preferred, particular embodiments appearing in a specification will not be read into the claims when the claim language is broader than such embodiments.” *Id.* Conversely, “where [ ] the claim language is unambiguous, [the Federal Circuit has] construed the claims to exclude all disclosed embodiments.” *Lucent Techs., Inc. v. Gateway, Inc.*, 525 F.3d 1200, 1215-16 (Fed. Cir. 2008). “[T]he description may act as a sort of dictionary, which explains the invention and may define terms used in the claims,” and the “patentee is free to be his own lexicographer,” but “any special definition given to a word must be clearly defined in the specification.” *Markman*, 517 U.S. at 989-90.

On the other hand, it is a fundamental rule that “claims must be construed so as to be consistent with the specification.” *Phillips*, 415 F.3d at 1316. “The construction that stays true to the claim language and most naturally aligns with the patent’s description of the invention will be, in the end, the correct construction.” *Renishaw PLC v. Marposs Societa’ per Azioni*, 158 F.3d 1243, 1250 (Fed. Cir. 1998).

Finally, the court may consider the prosecution history of the patent, if in evidence. *Markman*, 52 F.3d at 980. The prosecution history may “inform the meaning of the claim language by demonstrating how the inventor understood the invention and whether the inventor limited the invention in the course of prosecution, making the claim scope narrower than it would otherwise be.” *Phillips*, 415 F.3d at 1317 (citing *Vitronics*, 90 F.3d at 1582-83); *see also Chimie v. PPG Indus., Inc.*, 402 F.3d 1371, 1384 (Fed. Cir. 2005) (“The purpose of consulting the prosecution history in construing a claim is to exclude any interpretation that was disclaimed during prosecution.”) (internal quotations omitted).

In most situations, analysis of this intrinsic evidence alone will resolve claim construction disputes. *Vitronics*, 90 F.3d at 1583. However, “it is entirely appropriate . . . for a court to consult trustworthy extrinsic evidence to ensure that the claim construction it is tending to from the patent file is not inconsistent with clearly expressed, plainly apposite, and widely held understandings in

the pertinent technical field.” *Pitney Bowes, Inc. v. Hewlett-Packard Co.*, 182 F.3d 1298, 1309 (Fed. Cir. 1999). Extrinsic evidence “consists of all evidence external to the patent and prosecution history, including expert and inventor testimony, dictionaries, and learned treatises.” *Markman*, 52 F.3d at 980. All extrinsic evidence should be evaluated in light of the intrinsic evidence, *Phillips*, 415 F.3d at 1319, and courts should not rely on extrinsic evidence in claim construction to contradict the meaning of claims discernible from examination of the claims, the written description, and the prosecution history, *Pitney Bowes*, 182 F.3d at 1308 (citing *Vitronics*, 90 F.3d at 1583). While extrinsic evidence may guide the meaning of a claim term, such evidence is less reliable than intrinsic evidence. *Phillips*, 415 F.3d at 1318-19.

### DISCUSSION

The parties agree on the construction of one term, U.S. Patent No. 8,812,848, claim nine:

Claim Term	Agreed Construction
“A method for security capability negotiation during idle state mobility of a user equipment (UE), in a situation where the UE moves from a non-long term evolution (non-LTE) network to a long term evolution (LTE) network, the method comprising:”	Preamble is limiting

Joint Claim Construction and Prehearing St. at 1; *see id.* at Ex. A (Dkt. No. 124-1).

#### I. HUAWEI’S FIVE MOST SIGNIFICANT CLAIM TERMS

##### A. “[wherein the field is] dynamically indicative of one of payload size or a redundancy version (RV) [through the state of the field]” (‘278 Patent, claims 1 and 7)

HUAWEI’S PROPOSAL	SAMSUNG’S PROPOSAL	COURT’S CONSTRUCTION
No construction necessary.  Alternatively, “the field is dynamically indicative of one of a payload size or a Redundancy Version (RV) through the state of the field”; this language does not exclude a default value for the RV when the field indicates payload size	“variably indicating between (1) payload size and (2) a Redundancy Version (RV) [based on the values of all the N bits of the field]”	“variably indicating between (1) payload size and (2) a Redundancy Version (RV) [based on the values of all the N bits of the field]”; this language does not exclude a default value for the RV when the field indicates payload size

The '278 patent aims to reduce waste of physical resources in control signaling between a base station and a terminal (e.g., mobile device). '278 Patent at 3:32–35 (Dkt. No. 141-10). It does this by transmitting a packet's payload size and a redundancy version (RV) through different states of one field in the control signaling.<sup>2</sup> *Id.* at 3:36–41; 5:1–14.

Exemplary claim 1 provides, in part,

A method of signaling, comprising:  
receiving, by a terminal, control signaling comprising a field,  
wherein the field includes N bits that are either 1 or 0, and a state  
of the field is indicated by all the N bits of the field; wherein N  
is a positive integer greater than 1; ***wherein the field is  
dynamically indicative of one of a payload size or a  
Redundancy Version (RV) through the state of the field,***  
wherein the payload size is indicated through a first state of the  
field when the first state is within a first predetermined range  
and the RV is indicated through a second state of the field when  
the second state is within a 10 second predetermined range  
distinct from the first predetermined range;

'278 patent at 11:60–2:9 (emphasis added to claim term).

Huawei urges that this term does not require construction “because the claim term just uses ordinary words in ordinary ways.” Huawei’s Op. Br. at 4 (Dkt. No. 141).<sup>3</sup> While this may be true, it is not the meaning of the words that determines whether a term needs to be construed, it is whether there is an actual dispute over the scope of the term. “A determination that a claim term ‘needs no construction’ or has the ‘plain and ordinary meaning’ may be inadequate when a term has more than one ‘ordinary’ meaning or when reliance on a term’s ‘ordinary’ meaning does not resolve the parties’ dispute.” *O2 Micro*, 521 F.3d at 1361.

That is the case here, where the parties clearly disagree on the scope of the term. Samsung cites to the claim language itself, the specification, and the prosecution history to argue that the single field transmits “only one of the two parameters recited in the claims—payload size or RV—

<sup>2</sup> A packet consists of a data or payload portion and a control portion. Ex. A, Glossary of Telecommunication Terms, FED-STD-1037C, at P-1 (Dkt. No. 141-1). The payload size tells a mobile device how big the payload portion of a packet should be, and the RV indicates how to transmit or retransmit the packet.

<sup>3</sup> Huawei also offers an alternative construction providing the claim language, and additional guidance that clearly indicates that the claim does not exclude a default value for RV.

at any given time.” Samsung’s Resp. at 4 (Dkt. No. 150). And it proposes substituting different words and inserting the word “between” to effectively convey this concept. *Id.* at 5. It insists that Huawei’s construction would impermissibly allow it “to extend its monopoly protection to ‘joint encoding’ where two or more parameters are encoded in a single field at the same time.”<sup>4</sup> *Id.* at 6. It brushes off Huawei’s interpretation that the transmission includes a default value for the parameter not “dynamically indicated” by arguing that the “default value itself is not included in the control signaling[,]” rather, “the receiver might be preprogrammed to use some default value for RV.” *Id.* at 6–7.

Both parties’ points have validity. Samsung is correct in that the claim language supports its contention that the field indicates one or the other. ‘278 Patent, claim 1 at 12:2–3 (“wherein the field is dynamically indicative *of one of* a payload size or a Redundancy Version (RV),” emphasis added). And the specification repeatedly reinforces this interpretation. ‘278 Patent at 4:39–40 (“[T]he control signaling in every transmission may indicate either payload size or RV.”); *id.* at 4:52–54 (“It is appropriate that some states of the field indicate the payload size, and the remaining states indicate the RV.”); *id.* at 5:37–39; *id.* at 6:19–21; *id.* at 6:44–46; *id.* at 7:13–15; *id.* at 8:19–21; *id.* at 9:20–21; *id.* at 10:30–32; *id.* at 11:1–3 (“The foregoing embodiments of the present invention reveal that different states of one field in the control signaling may indicate the payload size *or* RV.”, emphasis added). Moreover, the specification explicitly states, “[t]he default value may not be indicated in the control signaling.” ‘278 Patent at 3:16–17; *id.* at 4:31–32. Rather, the control signaling may indicate payload size, and the default value of RV *applies*.<sup>5</sup> *E.g.*, ‘278 Patent at 5:37–39; *id.* at 6:19–21.

But Huawei argues that the field can *implicitly indicate* a default value for RV while

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<sup>4</sup> The ‘joint encoding’ use of the field is described in the 3GPP standards, which Huawei relies on to show infringement. Samsung’s Resp. at 7.

<sup>5</sup> The claims do not articulate precisely *how* the default value applies, and Huawei repeatedly expresses concern that adopting Samsung’s proposed construction would preclude the possibility that a default value for RV is *implicitly* indicated when the field is dynamically indicative of payload size. In this vein, it insists that Samsung’s proposal reads “dynamically” out of the claim term. But I disagree. I think Huawei’s *interpretation* reads dynamically out of the term. Regardless, my construction clarifies this issue.

explicitly indicating payload size. Huawei’s Op. Br. at 5. For this reason, it proposes adding as a clarification, “this language does not exclude a default value for the RV when the field indicates payload size.” *Id.* at 4. It cites to claim 2 (and analogous claim 8) for support, and contends that Samsung’s construction is inconsistent with these dependent claims. *Id.* at 5. Claim 2 provides, “The method of claim 1, further comprising: determining, by the terminal, that the RV is a default value if the received control signaling is indicative of the pay load size on the field.” ‘278 patent at 12:12–15. As Samsung points out, that a terminal might *use* a default value for RV does not mean that default value was *indicated* by the control signaling. *See* Samsung’s Resp. at 7. The dependent claims actually support this conclusion because the terminal *determines* that the RV is a default value *when the control signaling is indicative of the payload size*—not that the control signaling is indicative (dynamically or implicitly) of both. Samsung’s proposed construction does not “exclude material covered by the dependent claim[,]” *Trustees of Columbia Univ. in City of N.Y. v. Symantec Corp.*, 811 F.3d 1359, 1370 (Fed. Cir. 2016), because it does not exclude a default value for RV.

Adding Huawei’s language removes any controversy. Because Samsung’s proposed language makes it clear that the field can only indicate either payload size or RV, and Huawei’s addition affirms that a default value may exist for the RV when the field indicates payload size, I will construe the term that way.

**B. “a group number k of a sequence group allocated by the system” (‘239 Patent, claims 6 and 17)**

HUAWEI’S PROPOSAL	SAMSUNG’S PROPOSAL	COURT’S CONSTRUCTION
“a group number k of a sequence group allocated by the system”	The value k is the same throughout the claim.	“a group number k allocated by the system, where the group number k identifies a sequence group and where the value k is the same throughout the claim.”

The ‘239 patent discloses a method for reducing interference in a communication system by allocating sequences according to their correlation. ‘239 patent, Abstract (Dkt. No. 141-9). It teaches how to form “sequence groups” with high correlation, and then break down those



sequence groups into subgroups. *Id.* at 4:5–9; *id.* at 5:34–47. It then teaches how to select a group number  $k$  of a sequence group using one or more of four mathematical relationships, generating high correlation between sequences and reduced correlation/low interference between groups. *Id.* at 21:35–39.

Representative claim 6 provides,

A method for processing sequences in a communication system, comprising:  
 obtaining, by a cell or a base station or a user equipment, ***a group number  $k$  of a sequence group allocated by the system***;  
 selecting, by the cell or the base station or the user equipment,  $n$  sequences from a candidate sequence collection to form sequences in a sub-group  $i$  in a sequence group  $k$ ;  
 wherein  $n$  is a natural number,  $i$  is a serial number of the sub-group,  $k$  is a serial number of the sequence group, a value of a basic sequence index  $r_i$  in the sub-group  $i$  in the sequence group  $k$  is at least one of  $\lfloor k \cdot N_i / N_1 \rfloor$ ,  $\lceil k \cdot N_i / N_1 \rceil$ ,  $\lfloor k \cdot N_i / N_1 \rfloor + 1$  or  $\lceil k \cdot N_i / N_1 \rceil - 1$ , wherein  $N_i$  is a length of a sequence in the candidate sequence collection,  $N_1$  is a length of a reference sub-group sequence;  
 generating, by the cell or the base station or the user equipment, corresponding sequences according to the sequences in the formed sub-group; and  
 communicating, by the cell or the base station or the user equipment, according to the sequences on time frequency resources corresponding to the sub-group  $i$ .

'239 patent at 25:1–23 (emphasis added to claim term).

The parties dispute the interpretation of this claim term—does the system allocate a sequence group, or a group number  $k$ ?<sup>6</sup> Huawei concedes that the “nature of the English language” makes this claim term ambiguous because “allocated by the system” could modify either “a sequence group” or “a group number  $k$ .” Huawei’s Op. Br. at 8. Huawei’s proposed construction makes clear that the claim term intends the latter interpretation. Samsung argues that this admitted ambiguity renders these claims invalid as indefinite. Samsung’s Resp. Br. at 9. Alternatively, Samsung insists that “the value of  $k$ —once set—must be fixed for all instances of ‘ $k$ ’ recited in the claim.” *Id.* Huawei, for its part, stated that it “would not disagree” with Samsung’s proposed construction and conceded that a combination of the proposals would be acceptable. Huawei’s Op. Br. at 8.

<sup>6</sup> The claims define  $k$  as “a serial number of the sequence group.”



When reading this claim term in context of the surrounding language and in light of the specification, it is clear that “a group number k” is “obtain[ed]” by being “allocated by the system.” ‘239 Patent at 25:3–5; *id.* at 21:4–5; *see ACTV, Inc. v. Walt Disney Co.*, 346 F.3d 1082, 1088 (Fed. Cir. 2003)(“While certain terms may be at the center of the claim construction debate, the context of the surrounding words of the claim also must be considered in determining the ordinary and customary meaning of those terms”). Moreover, the potential for ambiguity in the claim language does not rise to the level of indefiniteness. *See Nautilus, Inc. v. Biosig Instruments, Inc.*, 134 S. Ct. 2120, 2124 (2014)(“[A] patent is invalid for indefiniteness if its claims, read in light of the specification delineating the patent, and the prosecution history, fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention.”). Since the claim language defines k as “a serial number of the sequence group[,]” ‘239 Patent at 25:11 (emphasis added), including in the claim the modifying language “of a sequence group” after “k” is certainly redundant, but it does not amount to an “error” subject to “reasonable debate” that should not be corrected by a court. *See Novo Indus., L.P. v. Micro Molds Corp.*, 350 F.3d 1348, 1354 (Fed. Cir. 2003)(“We hold that a district court can [correct an error] only if (1) the correction is not subject to reasonable debate based on consideration of the claim language and the specification and (2) the prosecution history does not suggest a different interpretation of the claims.”).

Since Huawei is amenable to a combined construction, this term will be construed as follows, “a group number k allocated by the system, where the group number k identifies a sequence group and where the value k is the same throughout the claim.”

**C. “receiving by a user equipment (UE), a service sent by a base station”/“receive a service sent by a base station” (‘613 Patent, claims 1 and 5)**

HUAWEI’S PROPOSAL	SAMSUNG’S PROPOSAL	COURT’S CONSTRUCTION
No construction necessary.	“receiving, by a user equipment, the value of a service sent by a base station” / “receive the value of a service sent by a base station”	No construction necessary.

The '613 patent enables mobile devices to know when and where to locate a service when a base station transmits it within a specific transmission unit, a fixed block of time called a radio frame. '613 at 5:10–51 (Dkt. No. 141-11). A frame is composed of a number of subframes, and a service may occupy one of more subframes. *Id.* at 1:59–63. Huawei contends that this term does not require construction, while Samsung proposes substituting the phrase “value of a service” for the word “service.” Huawei’s Op. Br. at 11; Samsung’s Resp. Br. at 10. Although the word “value” appears nowhere in the claim, Samsung argues that “[t]here is no question as to what the term ‘value’ means in the context of the claims and specification” and it “means the information in the service[.]” Samsung’s Resp. Br. at 14.

Claim 1 provides, in part,

A method for communicating, comprising:  
***receiving, by a user equipment (UE), a service sent by a base station***, the service being sent in one or more subframes that are designated as specific subframes, the specific subframes being selected from one or more radio frames that are designated as specific radio frames, the specific radio frames being selected from a time unit, wherein the time unit comprises 2M radio frames, each of the radio frames containing a number R of subframes that can be allocated to carry the service, where R is a natural number, and M is a nonnegative integer[.]

'613 Patent at 18:24–34 (emphasis added to claim term).

Samsung acknowledges that the UE receives the service itself, but bewilderingly argues that construing “service” to mean “value of service” somehow clarifies this meaning. *See* Samsung’s Resp. Br. at 13 (“Every single claim in the '613 patent is directed to a UE receiving a service, and not some unknown value or representation of a service[.]”); Huawei Reply at 9–10. But the specification repeatedly refers only to a “service.” *E.g.*, '613 Patent at 5:59–64 (“[A] part or all of subframes in the specific radio frames are selected as specific subframes for sending the specific service. The specific service may be a multimedia broadcast multicast service, or a unicast service, or one or more than one kinds of services transmitted in broadcast or multicast mode.”); *id.* at 7:41–47 (“[A] method for transmitting service....”). I agree with Huawei that Samsung’s proposal “fails to resolve any such purported issue because Samsung’s construction does not define a ‘service.’” Huawei’s Op. Br. at 12.

I do not see an *actual* dispute as to the scope of this term, but to the extent one may exist,

Samsung's proposed construction does nothing to provide clarity. The plain and ordinary meaning controls and construction is unnecessary.

**D. "a first P-temporary Mobile Station Identity (P-TMSI) in an access message" ('166 Patent, claims 1 and 12)**

HUAWEI'S PROPOSAL	SAMSUNG'S PROPOSAL	COURT'S CONSTRUCTION
No construction necessary.	"a P-temporary Mobile Station Identity (P-TMSI) field in an access message"	"a P-temporary Mobile Station Identity (P-TMSI) field in an access message"

Wireless networks consist of a Core Network (CN) and a Radio Access Network (RAN). '166 patent at 1:29–31 (Dkt. No. 141-12). Legacy networks, such as 2G and 3G, and evolved networks, such as 4G/LTE, use different network architecture, within both the RAN and the CN, to enable user equipment (UE), such as mobile devices, to access the internet. In legacy networks, the RAN includes Radio Network Controllers (RNC) and NodeBs. *Id.* at 1:44–46. And the CN includes Serving GPRS Support Nodes (SGSN). *Id.* at 1:46. In an evolved network, the RAN nodes are called eNodeBs and the CN nodes are called Mobility Management Entity (MMEs). *Id.* at 2:46–50.

Each UE has a temporary identifier, called a Packet Temporary Mobile Subscriber Identity (P-TMSI) in legacy networks and the Global Unique Temporary Identifier (GUTI)<sup>7</sup> in the LTE/4G system. The P-TMSI is a 32-bit number that contains certain information, including a Network Resource Identifier (NRI), which contains the address of the SGSN, a restart id, and an id for the UE. '166 patent at 5:30–43.

The prior art taught methods for UEs moving between areas covered by different RNCs within a legacy network. The '166 inventor recognized a problem when a UE moves from an LTE network to a legacy network because the UE lacks a P-TMSI. Without a P-TMSI, the legacy network could not identify the UE and obtain its context information. '166 patent at 3:27–33. Without the context information, the UE may experience an interruption in service. *Id.* at 3:33–

<sup>7</sup> The '166 patent refers to this next generation temporary identifier as SAE-TMSI because, at the time of the application, the 3GPP had not yet finalized the standard.

34.

To solve this problem, the '166 patent discloses a method and apparatus for a UE to access a legacy network from an evolved network using information extracted from its GUTI. '166 patent, Abstract. The invention enables the legacy network to locate the MME accessed by the UE in the evolved network without changing a RNC and a SGSN on the legacy network. *Id.* The UE creates an access message called a Radio Resource Control (RRC) message and places the information extracted from the GUTI in P-TMSI. The RRC message has two portions—an access stratum portion intended for the RAN node and a non-access stratum (NAS) portion intended for the CN. The parties dispute whether the “first-PTMSI” must occupy a specific location within the RRC message—the access stratum portion rather than the NAS portion.

Claim 1 provides,

A method for accessing a 2G/3G network comprising:  
 obtaining, by a User Equipment (UE), a temporary identity (ID) allocated by a Mobility Management Entity (MME) in an evolved network, wherein the temporary ID comprises MME information for identifying the MME;  
 adding, by the UE, the MME information from the temporary ID to ***a first P-Temporary Mobile Station Identity (P-TMSI) in an access message;***  
 sending, by the UE, the access message to a Radio Access Network (RAN) node in the 2G/3G network.

'166 patent at 17:46–56 (emphasis added to claim term).

Huawei contends that this term does not require construction, whereas Samsung proposes inserting the word “field” after P-TMSI to convey that the first P-TMSI must be contained *directly in* the access message. Huawei’s Op. Br. at 14; Samsung’s Resp. Br. at 17–18. Huawei insists that “nothing in the intrinsic evidence requires that the P-TMSI be located in any particular place in the access message.” Huawei’s Op. Br. at 15. And it urges that Samsung’s proposal “runs the risk of improperly limiting the scope of the more generic term P-TMSI that is used more frequently [dozens of times compared to just three times for P-TMSI *field*] throughout the intrinsic evidence.” *Id.* It highlights preferred embodiments to support its position. *See* '166 Patent at 5:44–52 (P-TMSI in an RAU Request message, not directly in an Initial Direct Transfer access message); *id.* at 11:17–28 (two P-TMSIs in the IDT message).

1 Samsung justifies its proposed construction by pointing to unasserted dependent claim 7  
2 and language in the specification that suggests a distinction between a “first P-TMSI” as a  
3 particular field of the access message and a “second P-TMSI” that is part of the NAS message.  
4 Samsung’s Resp. Br. at 17–18. It then asserts that “Huawei attempts to blur the distinction in  
5 order to support an infringement argument” by contending that “the claimed ‘first P-TMSI’ can  
6 correspond to either of the two P-TMSIs described in the patent specifications: i.e., the P-TMSI in  
7 the access message or the P-TMSI in the NAS message.” *Id.* at 18–19.

8 “The use of the terms ‘first’ and ‘second’ is a common patent-law convention to  
9 distinguish between repeated instances of an element or limitation[.]” but it “should not in and of  
10 itself impose a serial or temporal limitation onto [the] claim[.]” *3M Innovative Properties Co. v.*  
11 *Avery Dennison Corp.*, 350 F.3d 1365, 1371 (Fed. Cir. 2003); *see also Free Motion Fitness, Inc. v.*  
12 *Cybex Int’l, Inc.*, 423 F.3d 1343, 1348 (Fed. Cir. 2005)(“First does not denote spatial location, that  
13 is, it does not suggest where on the first extension arm or the second extension arm the pivot  
14 points are located[.]” internal quotation marks omitted). Samsung offers three reasons why the use  
15 of “first” and “second” here should impose a locational limitation: the specification’s treatment of  
16 the “first” and the “second” P-TMSIs; the applicant’s choice to use “first” and “second” to  
17 distinguish between the claimed “first-PTMSI” and the claimed “second-PTMSI;” and, dependent  
18 claims 16 and 17, which “further configure[.]” independent claim 12 to add a second-PTMSI to a  
19 NAS message. Samsung’s Resp. Br. at 19. Samsung’s arguments convince me that it is more  
20 than the use of “first” and “second” “in and of [themselves]” that warrants adopting its proposed  
21 construction; it is reading the claims “in the context of the entire patent[.]” *Phillips*, 415 F.3d at  
22 1313.

23 “Other claims of the patent in question, both asserted and unasserted, can also be valuable  
24 sources of enlightenment as to the meaning of a claim term. Because claim terms are normally  
25 used consistently throughout the patent, the usage of a term in one claim can often illuminate the  
26 meaning of the same term in other claims.” *Retractable Techs.*, 653 F.3d at 1314 (internal citation  
27 omitted). Viewing the surrounding claims and the specification demonstrates that the use of  
28 “first” and “second” connotes more than “repeated instances of an element.” Rather, the reference

to “a first P-[TMSI] in an access message” must reference the P-TMSI in the access stratum portion of the access message whether or not there are one or two P-TMSIs.<sup>8</sup> Otherwise, the invention would not work. ’166 Patent at 5:52–58 (“The RNC can see only the RRC message *but does not parse the NAS message*. According to the NRI information in the P-TMSI field carried on an Intra Domain NAS Node Selector Network Element (NE) of the RRC message, the RNC selects the corresponding SGSN, establishes a connection with the SGSN, and forwards the NAS message to the SGSN.”). The whole purpose of the invention is to send MME identifying information to the RAN node of the legacy network. Since the RAN network only accesses the access-stratum of the RRC message, the golden ticket must be located therein. I recognize the “fine line between construing the claims in light of the specification and improperly importing a limitation from the specification into the claims[.]” *Retractable Techs.*, 653 F.3d at 1305, but this construction is the only way “to capture the scope of the actual invention, rather than ... allow the claim language to become divorced from what the specification conveys is the invention.” *Retractable Techs.*, 653 F.3d at 1305.

**E. “dedicated priority list” (‘197 Patent, claims 1, 5, 7–9, 14, 15; ‘246 Patent, claims 1, 2, 6–8, 10–12, 16–18, 20; ‘003 Patent, claims 1–4, 7–9, 12, 14–20)**

HUAWEI’S PROPOSAL	SAMSUNG’S PROPOSAL	COURT’S CONSTRUCTION
No construction necessary.  Alternatively, “Priority List For the Specific Terminal”	“dedicated list that includes different radio access technologies listed in order of priority”	“Priority List for the specific terminal”

The ‘197, ‘246, and ‘003 patents (“the ‘197 family”) describe methods for a mobile device to “reselect” a cell in LTE and non-LTE networks when, for instance, the mobile device moves geographically into a new cell and the signal degrades. *E.g.*, ’197 Patent, Abstract (Dkt. No. 141-

<sup>8</sup> And, by implication, regardless of the dependent claims. I agree with Samsung that Huawei’s claim differentiation argument is a red herring. Construing “first-PTMSI” to refer to the PTMSI in the access stratum portion of the access message does not read out any limitation imposed by the dependent claims. *See Seachange Int’l, Inc. v. C-COR, Inc.*, 413 F.3d 1361, 1368 (Fed. Cir. 2005)(“The doctrine of claim differentiation stems from the common sense notion that different words or phrases used in separate claims are presumed to indicate that the claims have different meanings and scope[.]” internal quotation marks omitted).



13). The cell-reselection process existed in the prior art, but the '197 family aimed to solve problems associated with excessive signaling and increased costs associated with network upgrading. *Id.*; *see also* '197 patent at 1:65–2:9. The '197 family teaches a method in which a terminal (*e.g.*, mobile device) inherits a dedicated priority list from the LTE cell and follows the priorities indicated in that list during a “valid time,” even after re-selecting to a non-LTE cell. *See, e.g.*, '197 patent at 1:42–58; *id.* at 2:3–31; *id.* at 2:53–3:3.

Exemplary claim 1 from the '197 patent provides,

A method for cell reselection, comprising:  
obtaining, by a terminal, a ***dedicated priority list*** and a valid time of ***the dedicated priority list*** from a Long Term Evolution (LTE) system; and  
performing, by the terminal, cell reselection according to the ***dedicated priority list*** and the valid time of the ***dedicated priority list***, when the terminal camps on a cell of a non-LTE system;  
wherein, when the terminal camps on a cell of the non-LTE system, the performing cell reselection according to the ***dedicated priority list*** and the valid time comprises:  
performing, by the terminal camping on the cell of the non-LTE system, cell reselection according to the dedicated priority list before the valid time expires, wherein when the terminal camps on the cell of the non-LTE system, the dedicated priority list is invalid after the valid time expires.

'197 patent at 11:51–67 (emphasis added to highlight term).

Huawei insists that this term need not be construed or, alternatively, proposes “priority list for the specific terminal,” whereas Samsung proposes “dedicated list that includes different Radio Access Technologies listed in order of priority.” Huawei Op. Br. at 17; Samsung’s Resp. Br. at 19. Samsung urges that the claimed “dedicated priority list” must include *different* Radio Access Technologies (“RATs”) (and, by implication, may not include only a single RAT), and that the different RATs must be listed in order of priority. Samsung’s Responsive Br. at 21. It points to the '197 family specifications to argue that all disclosed embodiments of the “dedicated priority list” include different RATs listed in order of priority.

# **1. Claim Term Need Not Be Limited to “Different Radio Access Technologies”**

The dependent claims, the specification, and the prosecution history all support Huawei’s position that a “dedicated priority list” may include different frequencies, which is not necessarily



equivalent to *different* RATs. *See, e.g.*, ‘197 patent, claim 6 (defining dependent claim “wherein the dedicated priority list comprises one of the following[.]” and listing multiple options, including frequency *or* Radio Access Technology); ‘197 patent at 3:52–59 (“A priority in the priority list may refer to the priority level of a frequency *or* a Radio Access Technology (RAT). It may also refer to the priority level of a Frequency Band in GERAN... .”); ‘197 patent, Claim 6, prosecution history dated 2/14/12 “Amendment/Request for Reconsideration after Non-Final Rejection” (Ex. F)(amending claim language to allow non-RAT priority levels to overcome a section 103(a) rejection).

Samsung proffers several unconvincing reasons to reject Huawei’s position. First, it parses through particular claim language to differentiate between language that was part of the priority application and subsequently added language (and subject matter) that cannot be used to support Huawei’s position. Samsung’s Resp. Br. at 23. But the language highlighted by Huawei was included in the original application, *see* Dkt. No. 150, Ex. 2 at 32; *see also* ‘197 patent file wrapper, 2010-10-12 specification (Ex. P), so Samsung’s argument falls short.

Second, Samsung suggests that the principle of claim differentiation should not apply here because it is “not a hard and fast rule,” Samsung’s Response Br. at 24 (quoting *GPNE Corp. v. Apple Inc.*, 830 F.3d 1365, 1370 (Fed. Cir. 2016), and “the language of [dependent] claim 8 was added years after the priority application of the ‘197 Family.”<sup>9</sup> *Id.* But, as Huawei notes, the substance of this claim was disclosed in the specification of the ‘197 patent’s original application and there is no indication that “the motive for creating the dependent claim appeared to be litigation driven.” *See Thermapure, Inc. v. RxHeat, LLC*, No. 10 C 8157, 2015 WL 110075, at \*6 (N.D. Ill. Jan. 7, 2015)(discussing the rationale behind *ICU Medical, Inc. v. Alaris Medical Systems, Inc.*, 558 F.3d 1368 (Fed. Cir. 2009)), in which the court rejected the doctrine of claim differentiation when a dependent claim was added during prosecution and after the “introduction of the allegedly infringing products.”). Samsung offers no compelling reason for rejecting the

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<sup>9</sup> Dependent claim 8 of the ‘246 patent provides, “The method of claim 1, wherein the dedicated priority list comprises priority information of frequencies of the different RATs.” ‘246 patent at 12:18–20 (Dkt. No. 141-14).

principle of claim differentiation here.

Third, it asserts that “the priority level of a frequency ... describes one way that different RATs in a dedicated priority list may prioritize the different RATs according to these frequencies or according to the RAT type.” Samsung Responsive Br. at 24. But it fails to identify intrinsic or extrinsic evidence supporting its position. This is the basic disagreement regarding this term—Huawei contends that “a dedicated priority list may contain the priority information of things besides RATs, such as frequencies or frequency bands[,]” Reply at 11, whereas Samsung insists that it is all the same. But (as evidenced by this dispute) they are not the same, and nothing in the ’197 patent requires a dedicated priority list to contain *different* RATs. Accepting Samsung’s position without foundation would ignore the clear language of the claims, which repeatedly indicates that a dedicated priority list may refer to the priority level of a frequency *or* a RAT. Samsung’s construction would unjustifiably limit the claims.

## 2. Contents of Dedicated Priority List Need Not Be “Listed in order of Priority”

Samsung argues that “[e]very embodiment of the dedicated priority list includes multiple different RATs listed in order of priority.” Samsung’s Responsive Br. at 21–22. It contends that Huawei impermissibly relies on extrinsic evidence (a 3GPP technical specification) to argue that the priorities can be assigned an integer rather than listed in order of priority.<sup>10</sup> *Id.* at 25. Huawei counters that the “embodiment[s] ... never limit[] what the dedicated priority list must look like.” Huawei Reply at 12. I agree with Huawei.

The ’197 patent specification states that “[t]he dedicated priority list delivered in dedicated signaling of the LTE system *may indicate* that GERAN>UMTS>LTE.” ’197 patent at 4:14–16 (emphasis added); *see also id.* at 4:26–27; *id.* at 6:6–9; *id.* at 7:13–15; *id.* at 8:26–27; *id.* at 9:39–41. That a dedicated priority list “may indicate that GERAN>UMTS>LTE” does not mean that the dedicated priority list *appears as* “GERAN>UMTS>LTE.” The use of “indicates” throughout

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<sup>10</sup> The 3GPP technical standard cited by Huawei was cited by Samsung in the Joint Claim Construction Statement as extrinsic evidence supporting its proposed construction. Dkt. No. 124–2 at 63–64).

the specification supports Huawei’s position that the priority may be designated by some other means, such as by integers ranging from 0 to 7, rather than listed in order of priority. To conclude that the dedicated priority list must be listed in order of priority would entail two critical missteps—misinterpreting language in the specification (“may indicate”), and then improperly importing that misinterpreted limitation into the claims. I can do neither. *See Vitronics*, 90 F.3d at 1582.

The parties appear to agree that a “dedicated priority list” is a “priority list for the specific terminal.” And they both reference the use of the term in the prior art. Huawei’s Opening Br. at 18; Samsung’s Responsive Br. at 20 (acknowledging the difference between a dedicated and public priority list as understood in the prior art); Huawei’s Reply at 10. Nevertheless, because Samsung disputed the scope of this term, I find that it is necessary to construe it and adopt Huawei’s alternative proposed construction.

## II. SAMSUNG’S SELECTED CLAIM TERMS

### A. “a middle symbol in the slot” (‘130 patent, claims 9, 13)

SAMSUNG’S PROPOSAL	HUAWEI’S MODIFIED PROPOSAL	COURT’S CONSTRUCTION
No construction necessary.	“symbol(s) in the slot with the same number of symbols on each side	No construction necessary.

The ‘130 patent aims to increase reception reliability by allocating resources in a sub-frame for the transmission of control bits<sup>11</sup> and data bits from a base station (also called “Node B”) to a user equipment (downlink signal). ‘130 Patent, Abstract (Dkt. No. 140-1 at 6). The information is sent using symbols, which are arranged into frames, sub-frames, and slots. *Id.* LTE systems use a “reference signal” (RS”) to estimate the distortion of the transmission and ultimately restore signal quality. According to the patent, symbols closer to the RS suffer less degradation than those at positions farther away. ‘130 patent at 4:40–47. Because the acknowledgement

<sup>11</sup> Control information bits include positive acknowledgement bits (ACK), negative acknowledgement bits (NAK), and channel quality indicator bits (CQI). ‘130 patent at 1:36–38.

information (ACK/NAK bits) has strict performance requirements, the ‘130 patent teaches that it should be transmitted at symbols directly adjacent to the RS.

Exemplary claim 9 provides:

An apparatus for transmitting a signal in a slot of a subframe in a wireless communication system, the signal including data information and acknowledgement information, the apparatus comprising:

a mapper for mapping a reference signal to *a middle symbol in the slot*, mapping the data information to remaining symbols in the slot that are not used to map the reference signal, and mapping the acknowledgement information to first symbols among the remaining symbols in the slot, the first symbols not being used to map reference signals and the first symbols being directly adjacent to the middle symbol; and

a transmitter for transmitting the signal including the mapped data information, the mapped acknowledgement information, and the mapped reference signal, wherein some of the data information is mapped to the first symbols which are directly adjacent to the middle symbol, and wherein CQI information is multiplexed with the data information.

‘130 patent at 7:53–8:14.

Samsung insists that no construction is necessary for the term “a middle symbol in the slot,” while Huawei seeks to define the term as, “symbol(s) with the same number of symbols on each side.”<sup>12</sup> Samsung Op. Br. at 4 (Dkt. No. 140); Huawei’s Resp. Br. at 4 (Dkt. No. 149).

Samsung argues that these terms intend their ordinary meaning as understood by those skilled in the art, while Huawei’s proposed construction introduces unnecessary confusion and “seeks to redefine ‘middle’ to mean less than its ordinary meaning.” Samsung’s Op. Br. at 5. It takes particular issue with the example of a slot with an even number of symbols, in which case the “middle symbol in the slot” cannot have “the same number of symbols on each side.” *Id.*

Huawei responds by asserting that “a middle symbol” will consist of two symbols when there are an even number of symbols, and its construction still clarifies that there will be the same number of symbols on each side. Huawei’s Resp. Br. at 4–5. According to Huawei, the parties appear to agree on the scope of the term and how to identify the middle symbols, but disagree on “how (and whether) to express that sentiment in a claim construction.”<sup>13</sup> *Id.* at 5.

<sup>12</sup> In response, it modified its proposal to insert “in the slot.” Huawei’s Resp. Br. at 5.

<sup>13</sup> Samsung acknowledges that the “RS is thus equidistant from the beginning and the end of the

I agree with Huawei that the parties appear aligned regarding the scope of this term, but I disagree with its conclusion that I should nonetheless construe this term to aid the jury in understanding the scope. A jury is capable of understanding this term and Huawei's proposed construction fails to clarify any potential confusion. Because there is no actual dispute regarding this term, I find that it need not be construed and the plain and ordinary meaning controls.

**B. “[calculating/calculates] a HARQ process Identifier using the number of HARQ processes of the persistent resource allocation, the persistent resource allocation interval information, and time information” (‘726 patent, claims 1, 11)**

SAMSUNG'S PROPOSAL	HUAWEI'S PROPOSAL	COURT'S CONSTRUCTION
No construction necessary.	calculating a HARQ process ID using Equation 3: persistent resource-dedicated HARQ process's index=MOD[s,n], s=ceiling[t/i,1]	No construction necessary.

The ‘726 patent relates to a technique for providing Voice over Internet Protocol (VoIP), where a person's voice is converted into small data packets that are transmitted over the network using persistent resource allocation. ‘726 patent at 1:38–42 (Dkt. No. 140-1 at 23). A UE uses Hybrid Automatic Repeat request (HARQ) processes to check for and cure errors detected in the transmission. *Id.* at 1:62–65; *id.* at 2:4–15. Each HARQ process corresponds to a specific packet. When a UE receives multiple HARQs and packets in the same interval, it must determine which HARQ matches with which packet. The ‘726 patent states that a persistent resource-dedicated HARQ process identifier (ID) can be expressed as a function of (1) the number of HARQ processes; (2) the length of the interval; and (3) the time the interval began.<sup>14</sup> *Id.* at 3:13–24; 4:58–5:2. It then provides an example of calculating the HARQ process index using equation 3:

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slot[,]” Samsung Op. Br. at 4, but disputes that the parties agree on the scope of this term. Reply at 2.

<sup>14</sup> It refers to this relationship at equation 2. ‘726 patent at 8:60–9:3.

1 persistent resource-dedicated HARQ process's index= $\text{MOD}[s,n]$ ,  
 2 s-ceiling $[t/i,1]$ ,

3 [where] i denotes a persistent resource allocation interval expressed  
 4 in units of 10 msec, n denotes the number of persistent resource-  
 5 dedicated HARQ processes, and t denotes time information of the  
 6 timing at which persistent resources are allocated.

7 ‘726 patent at 9:10–18.

8 Exemplary claim 1 provides,

9 A method for operating Hybrid Automatic Repeat reQuest (HARQ)  
 10 in a mobile communication system, the method comprising:  
 11 receiving a number of HARQ processes of a persistent resource  
 12 allocation and persistent resource allocation interval information;  
 13 receiving data according to the persistent resource allocation interval  
 14 information;  
 15 ***calculating a HARQ process IDentifier (ID) using the number of***  
 16 ***HARQ processes of the persistent resource allocation, the***  
 17 ***persistent resource allocation interval information, and time***  
 18 ***information;*** and  
 19 associating a HARQ process with the calculated HARQ process ID.

20 *Id.* at 18:2–16 (emphasis added to claim term).

21 Huawei contends that the “calculating” step must be limited to equation 3 disclosed in the  
 22 second embodiment because it is the only embodiment that includes “calculating” a HARQ ID,  
 23 and the claim would not otherwise enable one skilled in the art to practice the invention. Huawei’s  
 24 Resp. Br. at 7–8 (citing *Fuja Decl.*).<sup>15</sup> To the extent that it is not limited, Huawei argues that the  
 25 claim must be invalid because it “provide[s] no more than a black box calculation with inputs and  
 26 outputs.” *Id.* at 9.

27 Samsung counters that Huawei’s proposed construction attempts to impermissibly limit the  
 28 method of calculating the HARQ process ID to the disclosed embodiment contained in equation 3.  
 Samsung’s Op. Br. at 9–10. It insists that the claim does not impose such a limitation and to do so  
 would impermissibly import a limitation from the specification into the claims. *Id.* at 10 (citing *E-  
 Pass Techs., Inc. v. Com Corp.*, 343 F.3d 1364, 1369 (Fed. Cir. 2003)). It also points to dependent  
 claim 4, which reads “The method of claim 1, wherein the HARQ process ID is calculated using:  
 HARQ process ID=s modulo n, where s is an integer derived from t/i, wherein t represents the

<sup>15</sup> Samsung objects to Huawei’s proffered expert declaration because it was not disclosed in the parties’ joint claim construction statement. *See* Joint Claim Construction St., Ex. C at 53 (Dkt. No. 124-3). I do not rely on it here.

time information,  $i$  represents the persistent resource allocation interval information, and  $n$  represents the number of HARQ processes of the persistent resource allocation.” ‘726 patent at 18:22–31. As Samsung highlights, claim 4’s equation is broader than equation 3, so accepting Huawei’s proposal would render dependent claim 4 broader than independent claim 1. But, “[a]n independent claim impliedly embraces more subject matter than its narrower dependent claim.” *Intamin Ltd. v. Magnetar Techs., Corp.*, 483 F.3d 1328, 1335 (Fed. Cir. 2007).

I agree with Samsung. Nothing in the claim language requires the calculating step to be limited to equation 3, and to import such a limitation would improperly limit the claims to the specification and ignore the principle of claim differentiation. *See Vitronics*, 90 F.3d at 1582 (“[P]articular embodiments appearing in a specification will not be read into the claims when the claim language is broader than such embodiments.”); *Phillips*, 415 F.3d at 1315 (“[T]he presence of a dependent claim that adds a particular limitation gives rise to a presumption that the limitation in question is not present in the independent claim.”). To the extent that the claim does not enable one skilled in the art to practice the patent because the “calculating” step is not sufficiently defined, Huawei must reserve that argument for a later time.

**C. “predetermined delay duration” (‘825 Patent, claims 1, 4)**

SAMSUNG’S PROPOSAL	HUAWEI’S PROPOSAL	COURT’S CONSTRUCTION
No construction necessary.  Alternatively, “determined beforehand.” <sup>16</sup>	Delay duration provided by base station.	Determined beforehand.

The ‘825 patent provides a method for a user equipment to communicate with a base station (Node B) on a shared channel (SCH), which is a channel used by multiple UEs communicating with the same base station. ‘825 patent, Abstract; *id.* at 1:53–56 (Dkt. No. 140-1 at 47). The Node B must be able to differentiate UEs to ensure that data packets are sent to their intended recipient. The ‘825 patent discloses a method for UEs to select a temporary ID from a

<sup>16</sup> Samsung offered this alternative construction in its Reply. Samsung Reply at 5 n.2 (Dkt. No. 156).



pool when initiating communications with a base station. Sometimes, two UEs may select the same short ID at the same time and a “collision” occurs. *Id.* at 2:14–39; *id.* at 6:47–49. The ‘825 patent addresses this potential problem by developing a monitoring technique in which a UE waits a “predetermined delay duration” prior to monitoring for a downlink signal, so that a first UE has time to receive its short ID before a second UE may intercept it. *Id.* at 3:33–45; *id.* at 6:34–39; *id.* at 6:65–7:7.

Claim 1 provides,

A method for performing random access in a user equipment (UE) of a mobile communication system, the method comprising:

receiving system information indicating a group of identification (ID)s;

selecting an [sic] first ID from among the group of the IDs;

transmitting a first uplink signal corresponding to the selected first ID for random access to a Node B;

after the transmitting of the first uplink signal, waiting for a ***predetermined delay duration*** without checking a downlink channel;

after the waiting for the ***predetermined delay duration***, checking the downlink channel during a valid period;

determining whether a downlink signal responding to the first uplink signal is received in the valid period, the downlink signal comprising a second ID and an UE-ID; and

transmitting a second uplink signal using the UE-ID, if the downlink signal is received during the valid period and the second ID is equal to the first ID, wherein the valid period starts when the ***predetermined delay duration*** starting from transmission of the first uplink signal has terminated.

‘825 patent at 11:39–62 (emphasis added to claim term).

Huawei proposes that this term be construed to mean the “delay duration provided by base station.” Huawei’s Resp. Br. at 11. It highlights language in the specification indicating that “[t]he T [delay duration] and P [valid period] values are included in the system information to be transmitted on the cell-by-cell basis and are provided to UEs.” ‘825 patent at 7:5–7; *see also id.* at 8:50–53; 7:14–16; Figs. 6, 7. And it insists that the “‘predetermined delay duration’ *must* be provided by the base station in order for the claimed invention to function.” Huawei’s Resp. Br. at 11 (emphasis added).

Samsung counters that the term imposes a temporal limitation (decided at an earlier time) but no spatial limitation, and the plain and ordinary meaning should apply. Samsung’s Op. Br. at

14. It also insists that the claims should not be limited to exemplary embodiments and the claim language nowhere *requires* that the information must come from the base station. Reply at 5–6.

It is improper to import limitations from preferred embodiments into the claims “absent a clear indication in the intrinsic record that the patentee intended the claims to be so limited.” *Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 913 (Fed. Cir. 2004). I must balance that rule against the edict that “[t]he construction that stays true to the claim language and most naturally aligns with the patent’s description of the invention will be, in the end, the correct construction.” *Phillips*, 415 F.3d at 1316. Huawei contends that the specification “describes a single way of predetermining the delay duration that is necessary in order for the invention to work[.]” Huawei’s Resp. Br. at 13, and it cites to *Toro Co. v. White Consolidated Industries, Inc.*, to support its position that there is no impermissible “limitation” when the written description does not support a broader reading of the claims, *see* 199 F.3d 1295, 1301 (Fed. Cir. 1999).

Samsung responds that *Toro* is distinguishable because (1) the *Toro* specification specifically referred to the “present invention,” not to an embodiment, and (2) the “dictionary definitions ... [did] not shed dispositive light on [the correct construction].” Samsung Reply at 5–7. It points to later cases that distinguish *Toro* when “there is no such statement of importance present in the specification.” *Altiris, Inc. v. Symantec Corp.*, 318 F.3d 1363, 1373 (Fed. Cir. 2003). And it insists that “[t]he ’825 Patent *nowhere precludes* the UE defining the predetermined delay duration and sending it to the base station, or both the UE and the base station being programmed in advance with the same delay duration, or some third source defining a predetermined delay duration and sending it to the UE and the base station, each of which would render the claimed invention ‘operable.’” Samsung Reply at 6 (emphasis added).

Samsung is right, but it is also the case that the ’825 patent *nowhere discusses* predetermining the delay duration in any of the manners hypothesized by Samsung. It is unclear where the patent points to the delay duration being provided by anything other than a base station. All that said, to avoid importing limitations from the specification into the claims I will accept Samsung’s proposed construction that the “predetermined delay duration” means “determined beforehand.”

**D. “a set of control channel candidates” (‘195 patent, claims 9, 25)**

<b>SAMSUNG’S PROPOSAL</b>	<b>HUAWEI’S PROPOSAL</b>	<b>COURT’S CONSTRUCTION</b>
No construction necessary.	all available control channels transmittable by a base station	No construction necessary.

The ‘195 patent is directed towards a method and apparatus for transmitting and receiving a set of control channels in an Orthogonal Frequency Division Multiple Access (OFDMA) system. l’195 Patent, Abstract (Dkt. No. 140-1 at 71). It aims to simplify a structure of the terminal by restricting the number of control channels being monitored, thereby reducing battery consumption. ‘195 patent at 4:46–58.

Claim 9 provides,

A method for receiving control information in a terminal for a wireless communication system, the method comprising:  
 receiving, from a base station, information associated with a number of Orthogonal Frequency Division Multiplexing (OFDM) symbols carrying control channels;  
 determining *a set of control channel candidates* based on an Identifier (ID) of the terminal, wherein each control channel candidate included in the set of control channel candidates consists of one of one, two, four, and eight control channel elements (CCEs) existing in the OFDM symbols; and  
 monitoring at least one control channel candidate belonging to the set of control channel candidates to receive the control information.

*Id.* at 13:41–55 (emphasis added to highlight term). Huawei proffers that “a set of control channel candidates” means “all available control channels transmittable by a base station,” which is different from the “monitoring set,” which is a subset of the “control channel candidate set.” Huawei Resp. Br. at 14–15. It points to figures 5A and 5B in the specification for support. *Id.* But it also acknowledges the aim of the invention to restrict a “set of control channels.” *Id.* at 16; *see also* ‘195 patent at 4:47–49 (“The present invention restricts a set of control channels being monitored by a terminal among all available control channels transmittable by a base station...”).

The Federal Circuit has “caution[ed] that claim language must be construed in the context of the claim in which it appears.” *IGT v. Bally Gaming Int’l, Inc.*, 659 F.3d 1109, 1117 (Fed. Cir. 2011). Accepting Huawei’s proposal would ignore the surrounding claim language, which indicates that “a set of control channel candidates” is *determined based on a terminal ID*. This

determination implies that “a set” is something less than “all.” It would also construe the claim in a way that is “inconsistent with the clear language of the specification.” *ERBE Elektromedizin GmbH v. Int’l Trade Comm’n*, 566 F.3d 1028, 1034 (Fed. Cir. 2009). Moreover, it would exclude disclosed embodiments, which indicate that the UE monitors a set of control channel candidates smaller than all control channel candidates. “[A]n interpretation [reading out preferred embodiments] is rarely, if ever, correct and would require highly persuasive evidentiary support[.]” *Vitronics*, 90 F.3d at 1583. Given the erroneous consequences of accepting Huawei’s proposal, I do not find it necessary to construe this term.

**E. “controlling an active time period during a [DRX] operation” (‘588 patent, preambles of claims 1 and 7)**

SAMSUNG’S PROPOSAL	HUAWEI’S PROPOSAL	COURT’S CONSTRUCTION
No construction necessary.	Indefinite.  Alternatively, “monitoring control data on a shared control channel during a DRX operation only between the start of a first timer and the expiration of a second timer.”	No construction necessary.

The ‘588 patent provides a mechanism for UEs in LTE systems to receive data packets from the Node B during a Discontinuous Reception (DRX) operation. ‘588 Patent, Abstract (Dkt. No. 140-1 at 92). In legacy systems, “a UE wakes up at a predetermined time, monitors a predetermined channel for a predetermined time period, and then enters again into a sleep mode in an idle state.” ‘588 patent at 2:23–25. This process is referred to as DRX, “which is a way to lengthening [sic] the waiting time of the idle-state UE.” *Id.* at 2:26–28. The conventional method was not feasible for a connected UE in an LTE system, so the inventors sought to adapt DRX operation to the LTE network. *Id.* at 3:1–9.

Claim 7 provides,

An apparatus for *controlling an active time period during a Discontinuous Reception (DRX) operation* in a User Equipment (UE) in a mobile communication system, comprising:

a DRX controller for starting, in the UE, a first timer to monitor control data via a shared control channel, the control data being associated with user data to be transmitted, and for starting, in the UE, a second timer, when control data indicating a new transmission of associated user data is received via the shared control channel while the first timer is running, or for restarting, in the UE, the second timer, when the control data indicating a new transmission of associated user data is received via the shared control channel while the second timer is running.

*Id.* at 13:51–64 (emphasis added to term).

Huawei contends that the preamble is limiting because it was used during prosecution history to overcome prior art and it is indefinite for failing to identify the alleged invention for “controlling an active time period.” Huawei Resp. Br. at 21–22. It alternatively proposes construing the term as “monitoring control data on a shared control channel during a DRX operation only between the start of a first time and the expiration of a second timer.” *Id.* Samsung insists that one skilled in the art would understand this term with reasonable certainty and the preamble language “merely states the intended purpose or use of the invention[,]” the “body of each claim recites a complete invention[,]” so the preamble should not be limiting. Samsung Op. Br. at 22–23. It points to language in the specification, particular embodiments, and an expert declaration to suggest that an “active period” cannot be so limited as Huawei insists because a UE may remain active after the second timer expires. *See* Reply at 14–15 (citing embodiment 4 and Valenti Decl.).

“Generally, a preamble is not limiting.” *Summit 6, LLC v. Samsung Elecs. Co.*, 802 F.3d 1283, 1292 (Fed. Cir. 2015). But it may “limit[] the invention if it recites essential structure or steps, or if it is necessary to give life, meaning, and vitality to the claim.” *Catalina Mktg. Int’l, Inc. v. Coolsavings.com, Inc.*, 289 F.3d 801, 808 (Fed. Cir. 2002)(internal quotation marks omitted); *see also Pacing Techs., LLC v. Garmin Int’l, Inc.*, 778 F.3d 1021, 1023–24 (Fed. Cir. 2015). Huawei argues that the preamble is limiting because it was used during prosecution to overcome prior art. Huawei Resp. Br. at 21. “[C]lear reliance on the preamble during prosecution to distinguish the claimed invention from the prior art transforms the preamble into a claim limitation because such reliance indicates use of the preamble to define, in part, the claimed invention.” *Catalina Mktg.*, 289 F.3d at 808. But on the other hand, “preamble language merely

extolling benefits or features of the claimed invention does not limit the claim scope without clear reliance on those benefits or features as patentably significant.” *Id.* at 809. The prosecution history indicates that independent claims 23 and 29 of the ’032 application<sup>17</sup> were rejected as anticipated by the prior art, and “objected to for allegedly being directed to performing a DRX operation, but not reciting any limitations related to a DRX operation.” 5/3/12 Response to Office Action in U.S. Patent Application No. 11/729,032 (Gray Decl. ¶ 13, Ex. 11, Dkt. No. 140-1 at 285).

The applicants disagreed with the objections “since both Claims 23 and 29 recite[] steps that occur during a DRX operation,” but nonetheless amended to add the preamble language “controlling an active time period during” to “*further clarify* that the controlling of the active time period is part of the DRX operation.” *Id.* The applicants then proceeded to distinguish the prior art:

*Ohta* fails to teach or suggest starting, in the UE, a first timer to monitor control data via a shared control channel, the control data indicating a transmission of associated user data, and starting or restarting, in the UE, a second timer to monitor the control data, when the control data indicating a new transmission of associated user data is received via the shared control channel during the active time period, as recited in independent claims 23 and 29.

*Id.* (emphasis in original)(Dkt. No. 140-1 at 289).

As evidenced by this explanation, the applicants focused on the claim language and scope to overcome the prior art, not the addition of “controlling an active time period.” They clearly did not find the amendment “patentably significant,” *Catalina Mktg.*, 289 F.3d at 809, because they disagreed with the examiner and referred to the addition as providing “further clarif[ication].” The Notice of Allowability confirms this conclusion. *See* Notice of Allowability (“The prior art of record does not disclose, teach or suggest directly, or indirectly the following limitations [reciting claims 23 and 29].”)(Malmberg Decl. ¶ 3, Ex. 2, Dkt. No. 156-3). This is therefore not a scenario where the applicant amended to add a preamble specifically to “distinguish the claimed invention from the prior art[.]” *Invitrogen Corp. v. Biocrest Mfg., L.P.*, 327 F.3d 1364, 1370 (Fed. Cir.

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<sup>17</sup> The ’588 patent claims priority to U.S. Patent App. No. 11/729,032.

2003); *Cf. id.* (“[T]he applicants clearly relied on the preamble term ... to distinguish [prior art].”). Rather, there was no such reliance here. The preamble language was added to provide clarity, not to limit the scope and overcome prior art.

The scope of the invention—“performing a DRX operation using a variable active period in a connected terminal”—is fully contained in the claims and the preamble merely states the intended use of the claims. ’588 patent at 1:23–25 (background of the invention); *id.* at 13:21–34 (claim 1); *id.* at 13:51–64 (claim 7). “[U]se descriptions such as this are rarely treated as claim limitations.” *Marrin v. Griffin*, 599 F.3d 1290, 1294 (Fed. Cir. 2010). Accordingly, the preambles to claims 1 and 7 are non-limiting because they are not “essential to understand limitations or terms in the claim body[.]” *Catalina Mktg.*, 289 F.3d at 808, and because the bodies of claims 1 and 7 recite “structurally complete invention[s].” *Rowe v. Dror*, 112 F.3d 473 (Fed. Cir. 1997).

### CONCLUSION

In sum, the terms are construed as follows:

#### HUAWEI PATENTS

'848 Patent, claim 9	
“A method for security capability negotiation during idle state mobility of a user equipment (UE), in a situation where the UE moves from a non-long term evolution (non-LTE) network to a long term evolution (LTE) network, the method comprising:”	Preamble is limiting
'278 Patent, claims 1 and 7	
“[wherein the field is] dynamically indicative of one of payload size or a redundancy version (RV) [through the state of the field]”	“variably indicating between (1) payload size and (2) a Redundancy Version (RV) [based on the values of all the N bits of the field]”; this language does not exclude a default value for the RV when the field indicates payload size
'239 Patent, claims 6 and 17	
“a group number k of a sequence group allocated by the system”	“a group number k allocated by the system, where the group number k identifies a sequence group and where the value k is the same throughout the claim.”
'613 Patent, claims 1 and 5	
“receiving by a user equipment (UE), a service sent by a base station”/“receive a service sent by a base station”	No construction necessary.



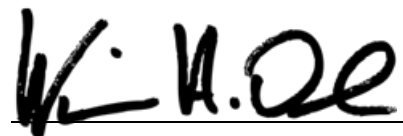
<b>'166 Patent, claims 1 and 12</b>	
"a first P-temporary Mobile Station Identity (P-TMSI) in an access message"	"a P-temporary Mobile Station Identity (P-TMSI) field in an access message"
<b>'197 Patent, claims 1, 5, 7-9, 14, 15; '246 Patent, claims 1, 2, 6-8, 10-12, 16-18, 20; '003 Patent, claims 1-4, 7-9, 12, 14-20</b>	
"dedicated priority list"	"Priority List for the specific terminal"
<b>SAMSUNG PATENTS</b>	
<b>'130 patent, claims 9, 13</b>	
"a middle symbol in the slot"	No construction necessary.
<b>'726 patent, claims 1, 11</b>	
"[calculating/calculates] a HARQ process Identifier using the number of HARQ processes of the persistent resource allocation, the persistent resource allocation interval information, and time information"	No construction necessary.
<b>'825 Patent, claims 1, 4</b>	
"predetermined delay duration"	"Determined beforehand."
<b>'195 patent, claims 9, 25</b>	
"a set of control channel candidates"	No construction necessary.
<b>'588 patent, preambles of claims 1 and 7</b>	
"controlling an active time period during a [DRX] operation"	No construction necessary.

In accordance with the Order re Case Mgmt Proposals, (Dkt. No. 143), the parties will narrow the patent claims to 22 per side, with no more than 22 accused products per side, by September 11, 2017.

A Case Management Conference is set for September 26, 2017 at 2 p.m. The parties shall file a Joint Case Management Statement on September 19, 2017, proposing the discovery schedule for the remainder of the case, identifying any procedural or other issues that require resolution at this time, and discussing ADR.

**IT IS SO ORDERED.**

Dated: August 31, 2017



William H. Orrick  
United States District Judge